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MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
BUREAU OF COMMUNICABLE DISEASE CONTROL
DIVISION OF TUBERCULOSIS PREVENTION & CONTROL

GOVERNMENT DOCUMENTS
COLLECTION

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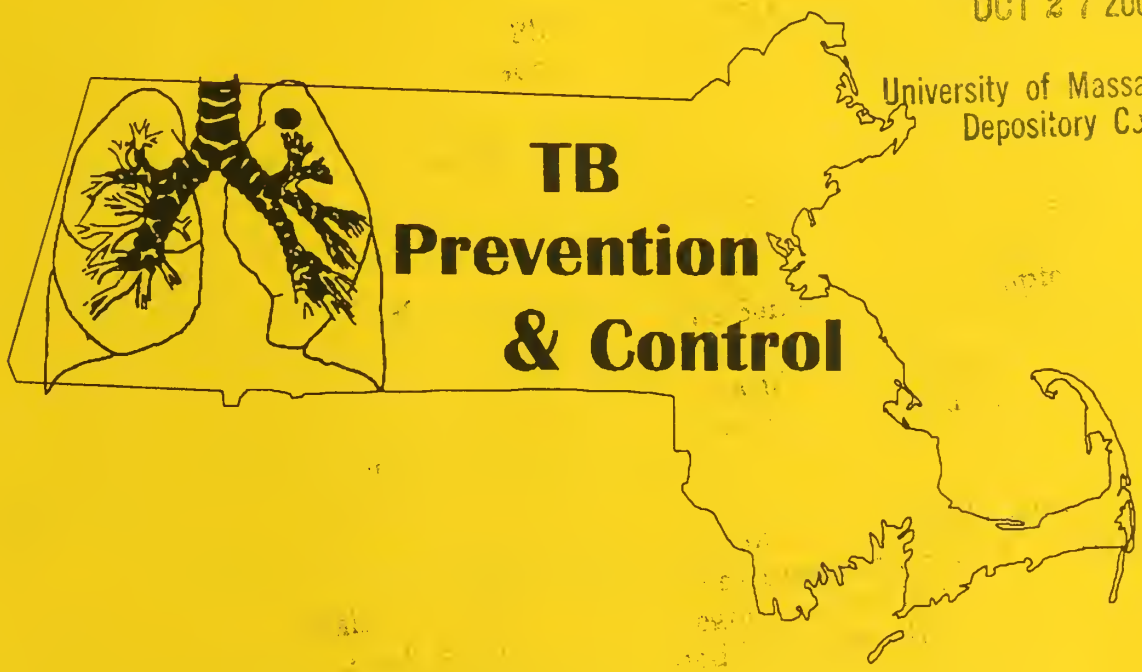

1999 Annual Statistical Report

ARGEO PAUL CELLUCCI
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LIEUTENANT GOVERNOR

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Bureau of Communicable Disease Control

Alfred DeMaria, Jr., M.D., Assistant Commissioner

Division of Tuberculosis Prevention and Control

Sue Etkind, R.N., M.S., Director

Edward A. Nardell, M.D., Tuberculsois Control Officer

INTRODUCTION

Massachusetts is ranked 26th in the United States in incidence of tuberculosis. In 1999, 270 cases (case rate of 4.49 per 100,000 population) were verified. This represents a 5% decrease from 1998, and a 37% overall decline since 1992. As in previous years, certain groups continue to be at higher risk than the population as a whole. These include persons born outside the United States and it's territories; persons infected with HIV; the homeless; injection drug users; children; the elderly and minority communities.

The 1999 TB Annual Report consists of morbidity data from many sources including health departments, health care providers, hospitals, laboratories, and other providers and service organizations in community settings. This Report also provides a summary of activities conducted by the TB Division during the year.

There are many other individuals, organizations and community groups in Massachusetts, who share our commitment to tuberculosis elimination. Recognition and gratitude are extended to those individuals both internal and external, who continue to provide needed information and support to these efforts. We also acknowledge and thank the central and field office TB Division staff, who assisted in producing this Report.

Please feel free to contact the Division (617-983-6970) if further information is needed. We look forward to continuing our collaboration in future years.

Alfred DeMaria, Jr., M.D.

Sue Etkind, R.N., M.S.

Edward A. Nardell, M.D.

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Staff Listing

ADMINISTRATION

Sue Etkind, R.N., M.S.	Division Director
Edward A. Nardell, M.D.	Tuberculosis Control Officer

SUPPORT STAFF

Denise Lancto	Administrative Assistant II
Cathy McGeown	Clerk IV
Evelyn Thomas	Adm. Asst. I/TSA 1
Constance Parke	Adm. Asst. I/TSA 3
Mary Mahoney	Adm. Asst. I/TSA 2
Anne Bernard	Adm. Asst. I/TSA 5

EDUCATION & TRAINING

Kathleen Hursen, R.N., M.S	Director of Education & Training
Jennifer Alexander, M.S.W., MPH	Prevention Specialist
Marilyn DelValle	Educational Coordinator

PATIENT MANAGEMENT SERVICES

Janice Boutotte, M.S.. R.N., C.S.	Director of Patient Management Services
Josie Ford, R.N.	Assistant Director
Susan Logan	Epidemiologist
Kathy Hendricks	Research Analyst I

[*Regional Nursing Staff*]

Carol Cahill, R.N.	TSA 1 Nurse
Jo-Ann Keegan, R.N., M.S.	TSA 2 Nurse
Nancy Flynn, R.N., B.S.	TSA 3 Nurse
Joan Thompson-Allen, R.N.	TSA 5 Nurse

[*Community Outreach*]

JoAny Perez	Program Coordinator
Judith Quintana	Biometrician I
Wally Rivera	TSA 1
Hoang Tran	TSA 1
Dipak Desai	TSA 2
Kenedy Mondesir	TSA 2
Sardar Jajan	TSA 2
Cynthia Montes	TSA 2
Sovannary Lak	TSA 3
Flora Rosario	TSA 3
Jian Yu	TSA 3
Dorka Deleon	TSA 3
Leandro Fortes	TSA 4
Juan Valerio	TSA 4
Rao Maddula	TSA 4
Bana Abubakar	TSA 4
Yin-Chun Leung	TSA 5
Vacancy	TSA 5
Eddy Bien-Aime	TSA 5

TB SERVICES TO NON-US BORN

Shameer Poonja	TB Coordinator
Carmen Laorenza, B.S.	Community Services Coordinator

EPIDEMIOLOGY

Sharon Sharnprapai, M.S.	Director of Epidemiology
Joseph Pike, R.R.A., M.A.	Epidemiologist
Blanca Cintron	Research Analyst III
Debra Thimas	Clerk III
Debra Beausoleil	Biometrician I
Vacancy	Biometrician II
Ann Miller, M.P.H.	Epidemiologist (RFLP)
Vacancy	Biometrician (RFLP)
Robert Suruki, M.S.	Epidemiologist (RFLP/Cluster)
JillNorthrup, MPH	Epidemiologist (RFLP/Lab Cross Contamination Study)
Robert Wald	Computer Programmer

POLICY & COMMUNITY SERVICES

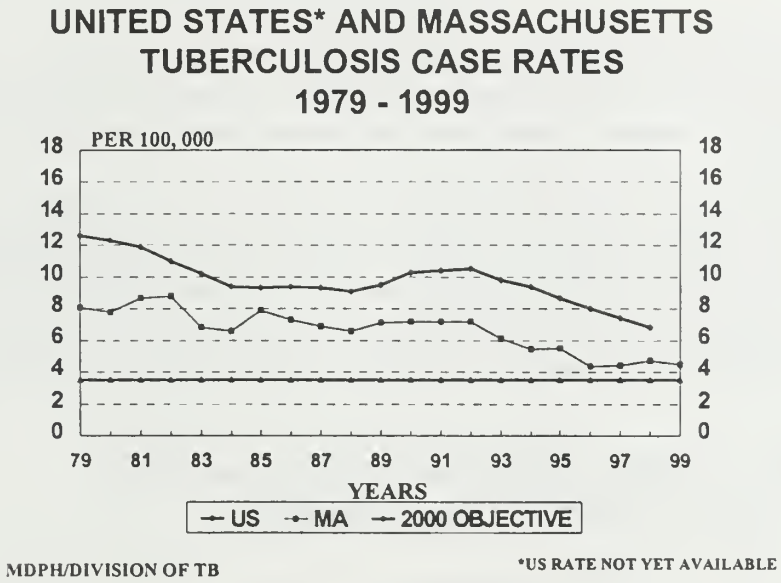
Linda Singleton, R.N., .P.H.	Director of Policy & Community Services
Joseph DeCinti, M.Ed.	Asst. Director, Clinical Services
Nancy Perea-Centeno	Biometrician II

1999 TB Morbidity

1999 Tuberculosis Overview

EPIDEMIOLOGY

In 1999, 270 cases (case rate 4.49 per 100,000 population) of TB were reported to and verified by the Massachusetts Department of Public Health, Division of TB Prevention and Control. This represents a 5% decrease from 1998 and a 37% overall decline in the case rate since 1992. Between 1989 and 1992, a resurgence of TB occurred in Massachusetts, however, that trend has been reversed and Massachusetts is close to achieving the Healthy People 2000 objective of 3.5 cases per 100,000 population.



Note: Case rates prior to 1990 were based on estimated population projected for each of those years. From 1990 through 1999, case rates were calculated using 1990 census population data. All case rates are per 100,000 population.The TB Division designates communities to be at a higher risk for TB as those with: a) a seven year average annual case load of more than 4 cases and b) a seven year average annual case rate above the state case rate. In 1999, 14 of the 351 communities in Massachusetts met this definition (appendix 1). These 14 communities account for the majority (67%) of TB cases.

Boston is the largest city in Massachusetts with a population of approximately 600,000 people. Each year, Boston contributes

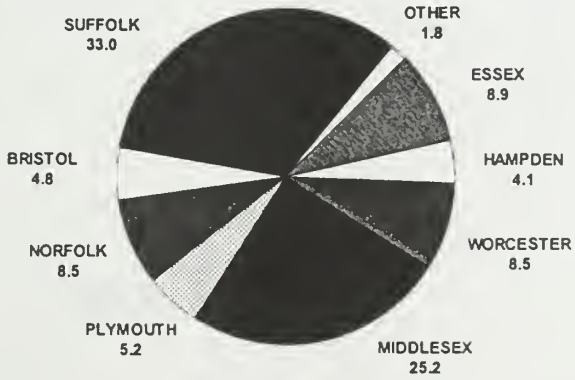
approximately one of every three TB cases reported in Massachusetts (1988-35%, 1993-31%, 1999-29%). The number of TB cases in Boston however, has declined about 10% each year since 1991, and the rate of reported cases in 1999 is the lowest that has ever been reported.

The cities of Brockton and Lawrence had a significant increase of TB cases reported in 1999. Increases in TB cases were also reported from Framingham, Lowell, Lynn, and Worcester. For Somerville, the increase in TB cases in 1998 has been reversed and the case rate for TB in 1999 is similar to that reported for the previous few years. Despite an overall 5% decline of TB cases statewide from 1998, 6 of the 14 higher risk cities experienced an increase of TB cases, and 5 experienced no change. Only 3 of the higher risk cities experienced a decline.

Of the 351 cities and towns in Massachusetts, only 60 (17%) had TB cases. Of these 60 communities, 13 (22%) had more than 5 cases of TB and each of the remaining 47 communities had less than 5 cases. See Appendix 2.

Analyses of TB cases by county of residence indicate that almost 60% of the cases were reported from two counties, Suffolk (33%), mostly the City of Boston, and Middlesex, the largest county, (25%). Three of the 14 counties; Barnstable, Hampshire, and Franklin had less than 1% of the TB cases. Berkshire, Dukes and Nantucket Counties did not report any TB cases in 1999.

MASSACHUSETTS VERIFIED TUBERCULOSIS CASES BY COUNTY 1999 (N = 270)



PERCENT OF CASES

MDPH/DIVISION OF TB

OTHER INCLUDES;
BARNSTABLE <1%, HAMPSHIRE <1%,
FRANKLIN <1%
BERKSHIRE, DUKE, NANTUCKET ARE TB FREE

Of the 270 TB cases, 148 (55%) were male and 122 (45%) were female.

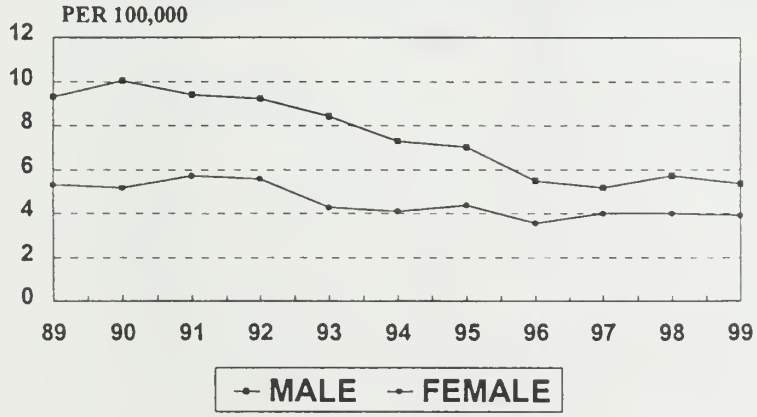
MASSACHUSETTS TUBERCULOSIS CASES BY GENDER 1999 (N = 270)

PERCENT OF CASES

MDPH/DIVISION OF TB

Analyses of case rates indicate a greater decline in TB cases among males (1992 case rate 9.21, 1999 case rate 5.36) than females (1992 case rate 5.56, 1999 case rate 3.90).

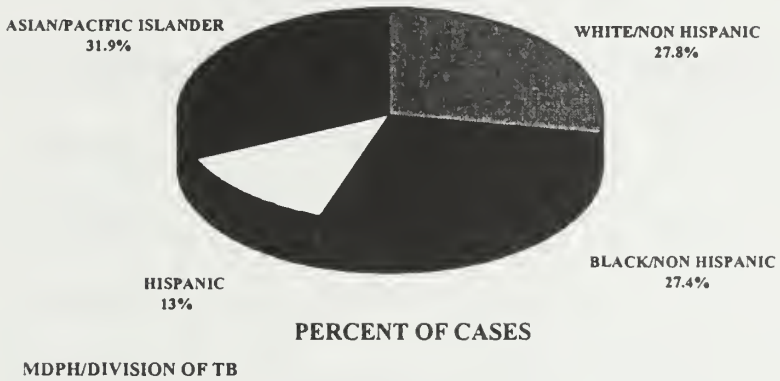
MASSACHUSETTS TB CASE RATES BY GENDER 1989 - 1999



MDPH/DIVISION OF TB

The majority of the 1999 TB cases (195 cases,72%) occurred among persons of color: Black (74 cases,27%), Asian (86 cases,32%), and Hispanic (35 cases,13%).

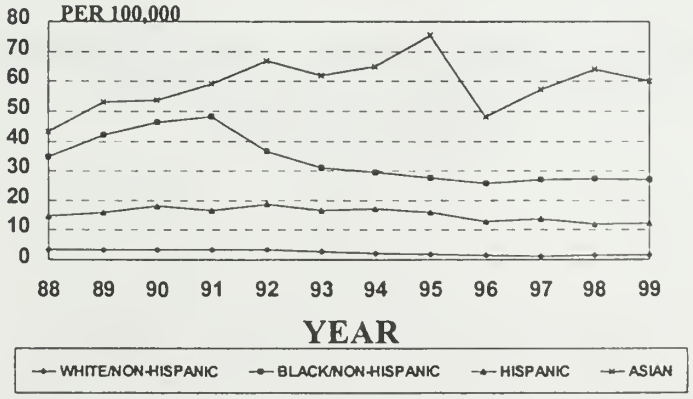
MASSACHUSETTS TUBERCULOSIS CASES BY RACE/ETHNICITY 1999 (N=270)



MDPH/DIVISION OF TB

Analyses of case rates for whites and Hispanics indicate a gradual decline in TB cases for both groups since 1992-1996, which has since stabilized. For blacks, the case rate per 100,000 has declined from a rate of 48.1 in 1991 to 27.0 in 1999. For Asians, the case rate rose from a rate of 43.2 in 1988 to a high of 75.3 in 1995. In 1999, the case rate for Asians was 60.0.

MASSACHUSETTS TUBERCULOSIS CASE RATES BY RACE/ETHNICITY 1988 - 1999



MDPH/DIVISION OF TB

Case rates for race and ethnicity were calculated using 1990 census population data.

Analyses of relative risk (RR) for TB disease indicate that persons of color are more likely to have TB than whites (RRblack = 19.0, RRHispanic = 8.6, RRAsian = 42.2)

TUBERCULOSIS CASE RATES BY RACE/ETHNICITY MASSACHUSETTS, 1999

RACE/ETHNICITY	# CASES	CASE RATE	RELATIVE RISK
WHITE/NH	75	1.4	1
BLACK/NH	74	27.0	19.0
HISPANIC	35	12.2	8.6
ASIAN, P.I.	86	60.0	42.2

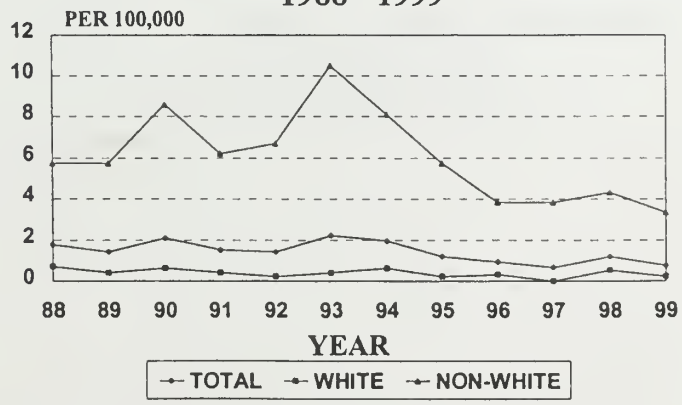
UNKNOWN RACE N=1

NH = NON HISPANIC

MDPH/DIVISION OF TB

In 1999, 9 cases of TB were among children < 15 years of age. Seven (77%) were children of color. Analyses of case rates indicate that TB among children of color has declined substantially since 1993 (1993 case rate 10.5, 1997 case rate 3.82, 1999 case rate 3.30).

MASSACHUSETTS TUBERCULOSIS IN CHILDREN <AGE 15, YEARS CASE RATES BY RACE/ETHNICITY 1988 - 1999



MDPH/DIVISION OF TB

Analyses of the 1999 TB cases by age indicate that 42 cases (15%) were less than 25 years old, 116 cases (38%) were between the ages of 25 – 44 years, 62 cases (28%) were between the ages of 45 – 64 years and 50 cases (19%) were age 65 years and older. Among persons of color, nearly half were between the ages of 25 – 44 years (Black 50%, Hispanic 49%, Asian 47%). Analyses of age group by race indicate that persons of color tended to be younger than whites. Specifically, 90% of those less than 25 years of age and 81% of those ages 25 – 44 years were persons of color.

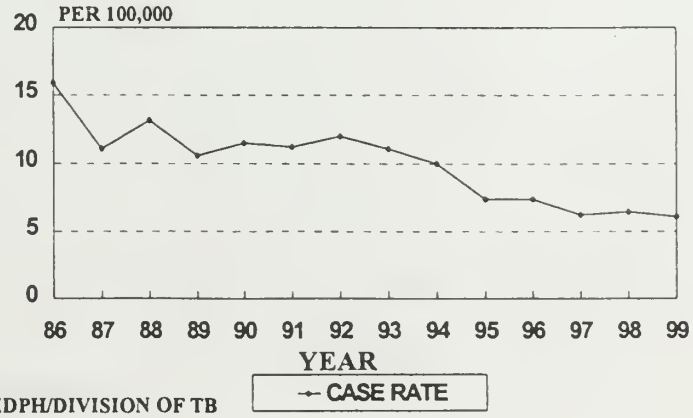
MASSACHUSETTS 1999 TUBERCULOSIS CASES BY AGE, RACE/ETHNICITY

AGE	WHITE/NH	BLACK/NH	HISPANIC	ASIAN	TOTAL
<1-24	4 5%	17 23%	5 14%	16 19%	42 15%
25-44	22 29%	37 50%	17 49%	40 47%	116 38%
45-64	19 25%	12 16%	13 37%	18 21%	62 28%
65+	30 40%	8 11%	0 0	12 14%	50 19%
TOTAL	75	74	35	86	270

MDPH/DIVISION OF TB

In 1999, 50 cases (19%) of TB cases were age 65 years and older. Analyses of case rate indicate an overall decline in TB cases among the elderly (1985 case rate 18.8, 1992 case rate 12.0, 1999 case rate 6.1).

RATE OF TUBERCULOSIS IN PERSONS AGE 65 AND OVER MASSACHUSETTS 1986 - 1999



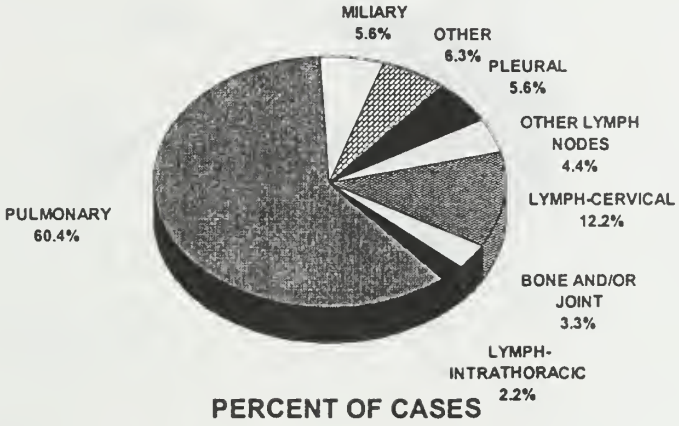
MDPH/DIVISION OF TB

Clinical Characteristics

Site of Disease

Of the 270 TB cases, 163 (60%) presented with lung as the primary site of disease. This was followed by cervical lymph node – 33 cases (12%), miliary – 15 cases (6%), pleura – 15 cases (6%), and other lymph nodes – 12 cases (4%).

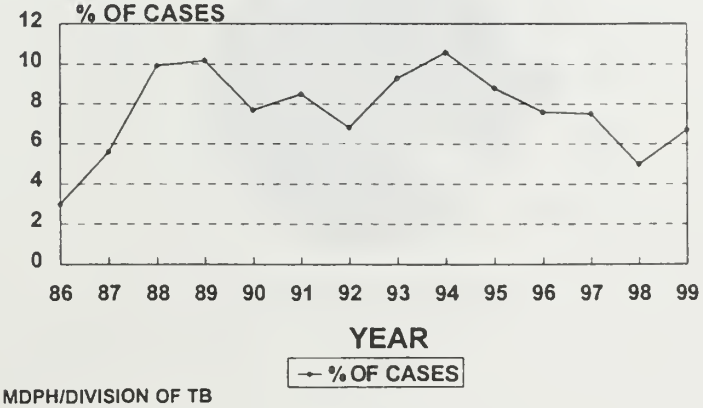
MASSACHUSETTS TUBERCULOSIS CASES BY PRIMARY DISEASE SITE 1999 (N=270)



MDPH/DIVISION OF TB

In 1999, 18 cases (6.7%) of TB had multiple sites of disease, the majority of these cases had either pulmonary or pleural involvement. Since 1994, the proportion of TB cases with multiple sites of disease has declined.

PERCENT OF TUBERCULOSIS CASES WITH MULTIPLE SITES MASSACHUSETTS 1986 - 1999

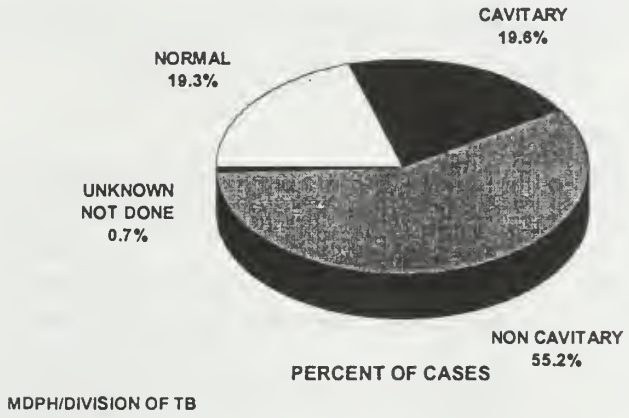


MDPH/DIVISION OF TB

Chest Radiography Results

Of the 270 cases of TB, 163 cases (60%) presented with non-cavitary pulmonary disease at time of diagnosis. Fifty-three cases (20%) presented with cavitary disease, 52 cases (19%) had a report of a normal chest x-ray and 2 cases (< 1%) either did not have chest x-ray done, or the results were not available.

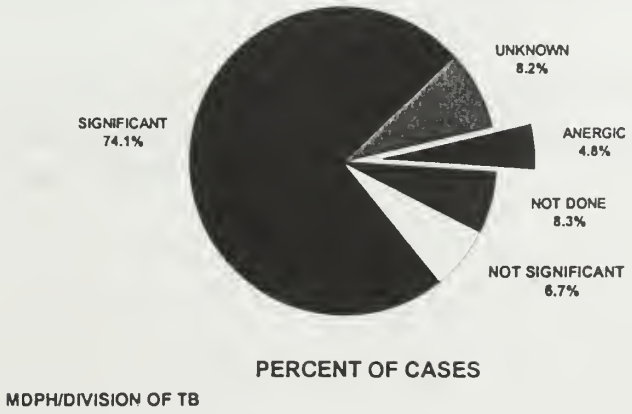
MASSACHUSETTS TUBERCULOSIS CASES BY X-RAY RESULTS 1999 (N=270)



Skin Test Results

Two-hundred (74%) of the 270 cases of TB had positive skin test results, 13 cases (5%) were documented to be anergic, 18 cases (7%) had negative results, 22 cases (8%) had unknown results and 17 cases (6%) did not have skin testing done.

MASSACHUSETTS TUBERCULOSIS CASES BY SKIN TEST RESULTS 1999 (N=270)



Bacteriologic Confirmation
In 1999, 227 (84%) of the 270 cases were bacteriologically confirmed. This represents a bacteriologically substantiated incidence rate of 3.77 per 100,000 population.

Of the 227 bacteriologically confirmed cases, 22 (9.7%) had isolates with anti-tuberculosis drug resistance. Isolates from fourteen cases (64% of 22 cases, 6% of 227 cases) were resistant to isoniazid (INH) either alone or in combination with other agents.

TUBERCULOSIS DRUG RESISTANCE MASSACHUSETTS 1999

	#CASES	%
TUBERCULOSIS CASES	270	100
TUBERCULOSIS CASES WITH DRUG RESISTANT ORGANISM	22	8.2
*BACTERIOLOGICALLY CONFIRMED TB CASES	227	84.1
BACTERIOLOGICALLY CONFIRMED CASES WITH DRUG RESISTANT ORGANISM	22	9.7
BACTERIOLOGICALLY CONFIRMED CASES WITH ISONIAZID RESISTANCE (ALONE OR IN COMBINATION WITH OTHER)	14	6.2

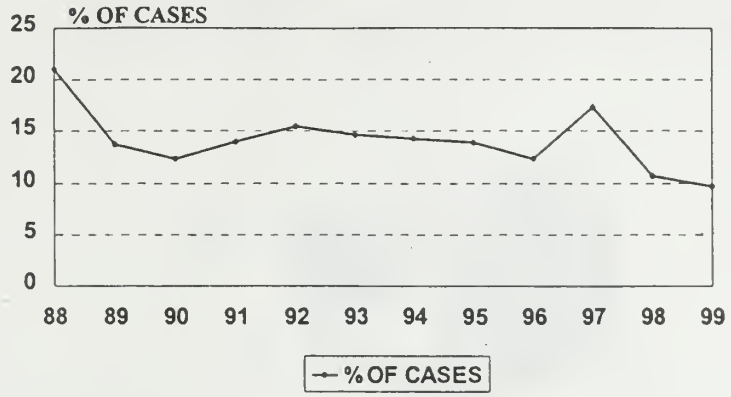
*BACTERIOLOGICALLY SUBSTANTIATED INCIDENCE RATE OF = 3.77 PER 100,000

MDPH/DIVISION OF TB

Cases with Drug Resistance
Note: drug resistance is defined as greater than 1 percent resistance to any concentration of that drug. Multi-drug resistance is defined as being resistant to at least two drugs, and must include isoniazid (INH) and rifampin (RIF).

Since 1992, the proportion of cases with drug resistant TB case in Massachusetts has remained around 10 -15% of the total bacteriologically confirmed TB cases (1999 – 10%).

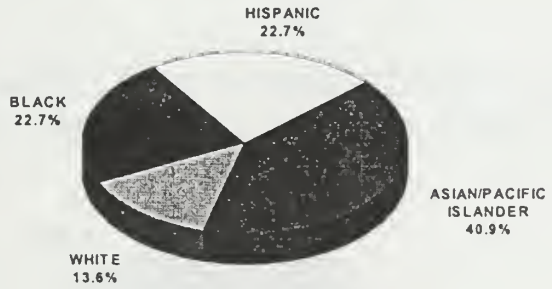
PERCENT OF BACTERIOLOGICALLY CONFIRMED TB CASES WITH DRUG RESISTANT ISOLATES MASSACHUSETTS 1988 - 1999



MDPH/DIVISION OF TB

Analyses of the 22 drug resistant TB cases by race indicate that persons of color accounted for the majority of the drug resistant cases (86%). However, there has been a significant trend reduction in the number of drug resistant cases among Asians.

MASSACHUSETTS DRUG RESISTANT TUBERCULOSIS CASES BY RACE/ETHNICITY, 1999 (N=22)

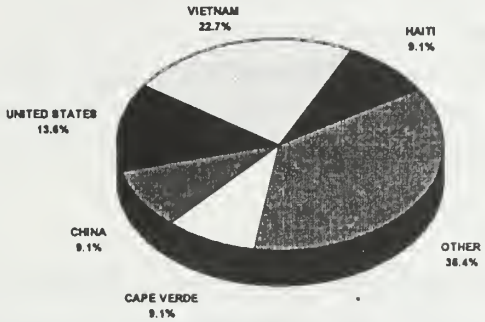


PERCENT

MDPH/DIVISION OF TB

Analyses of the 22 drug resistant cases by place of birth indicate that 86% were born outside the United States. Countries of origin included: Vietnam – 5 cases (23%), China - 2 cases (9%), Haiti - 2 cases (9%), Cape Verde - 2 cases (9%) and the remaining 8 cases (32%) were from 8 other countries.

MASSACHUSETTS DRUG RESISTANT TUBERCULOSIS CASES BY PLACE OF BIRTH, 1999 (N = 22)

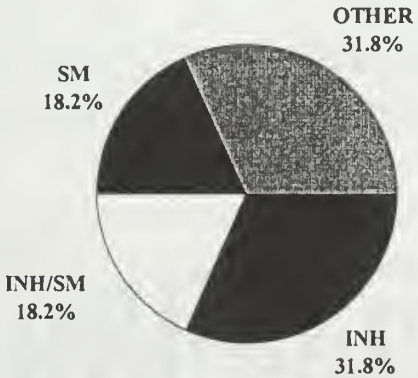


PERCENT OF CASES

MDPH/DIVISION OF TB

Of the 22 TB cases with drug resistant disease, isolates from 7 (32%) were resistant to INH alone, 4 (18%) were resistant to streptomycin (SM) alone, 4 (18%) were resistant to INH/SM, 7 (32%) were resistant to other combination of drugs and there were no multi-drug resistant TB (resistant to at least INH/RIF) cases reported. **In 1997, 6 TB cases were MDR-TB as compared to 1 MDR-TB in 1998, and none in 1999.**

MASSACHUSETTS TUBERCULOSIS CASES BY DRUG RESISTANCE PATTERN, 1999 (N = 22)



PERCENT OF DRUG RESISTANT CASES

MDPH/DIVISION OF TB

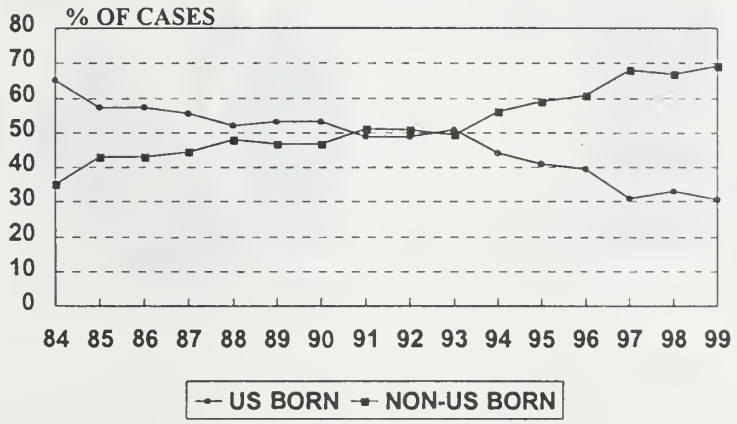
NONE HAD MDR-TB (RESISTANT TO AT LEAST INH AND RIF)

High Risk Group Profiles

Cases in Non-U.S. Born Persons

The non-U.S. born (defined as persons born outside the United States and its territories) remain the highest risk group for TB in Massachusetts. In 1999, 187 (69%) of the TB cases were among those not born in the U.S. Over the years, non-U.S. born persons have gradually accounted for a greater proportion of the TB cases seen in Massachusetts (1984 - 35%, 1992 - 51%, 1999 - 69%). While the proportion of cases occurring in the non-U.S. born has increased, the absolute numbers of such cases has been stable since 1993.

TUBERCULOSIS CASES BY PLACE OF BIRTH MASSACHUSETTS 1984 - 1999



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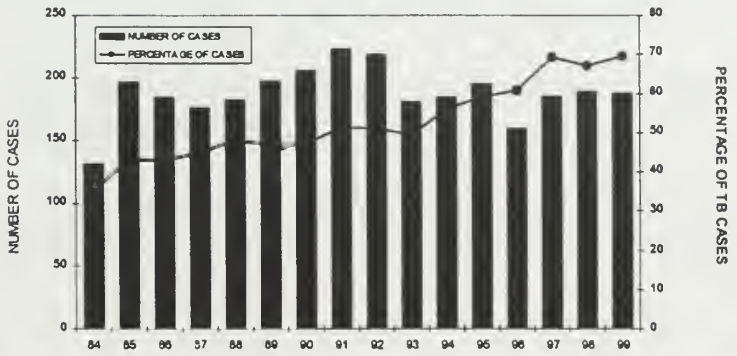
TRENDS IN TB CASES IN NON-US BORN PERSONS, MASSACHUSETTS 1984 - 1999



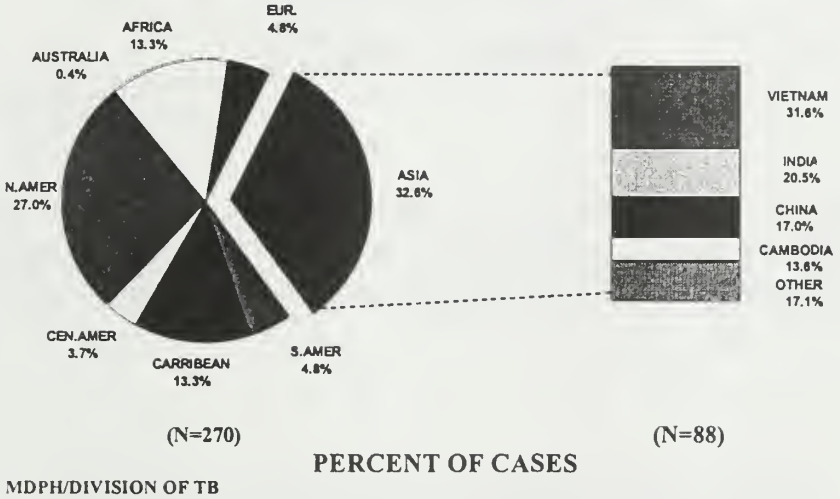
MDPH/DIVISION OF TB

YEAR

Of the 187 non-U.S. born with TB in 1999, persons from Vietnam were the largest group with 28 cases (15%), followed by Haiti - 18 cases (10%), India -18 cases (10%), China – 15 cases (8%), and Cambodia - 12 cases (6%). The remaining 96 cases (51%) were from 46 different countries.

When foreign born cases were analyzed by geographic region, the largest proportion of cases were from Asia with 88 cases (33%), followed by the Caribbean (13%) and Africa with (13%).

MASSACHUSETTS TUBERCULOSIS CASES
PLACE OF BIRTH BY WORLD REGIONS
1999

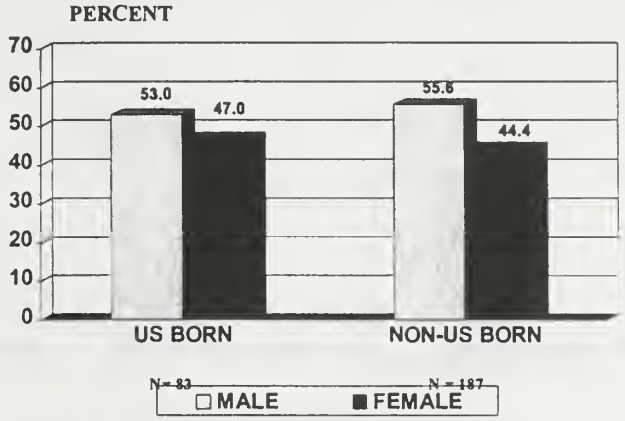


Between 1993 and 1999, there were a total of 1,282 non-U.S. born TB cases in Massachusetts. Of the 1,282 foreign born cases, 870 cases (68%) were from 10 countries that include; Vietnam (212 cases, 17%), Haiti (176 cases, 14%), China (107 cases, 8%), India (98 cases, 8%), Cambodia (80 cases, 6%), Dominican Republic (60 cases, 5%), Portugal (40 cases, 3%), Cape Verde (37 cases, 3%. Brazil (32 cases, 3%), Somalia (28 cases, 2%).

<u>Comparison of non-U.S. born cases and cases born in the U.S. by sex, age group, and primary site of disease.</u>

Analyses of cases reported in 1999 indicate little difference in the distribution of non-U.S. born cases and the U.S. born cases by sex.

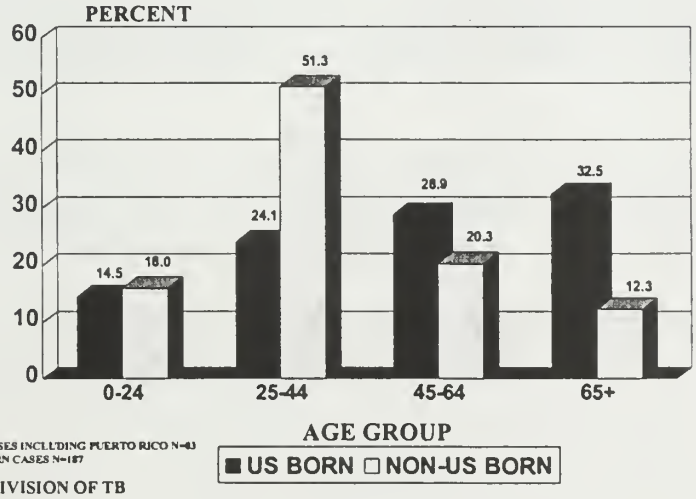
MASSACHUSETTS NON-US BORN AND US BORN CASES BY SEX 1999



US BORN CASES INCLUDING PUERTO RICO N=43
NON-US BORN CASES N=187
MDPH/DIVISION OF TB

Analyses of age groups indicates that non-U.S. born cases were likely to be younger than those born in the U.S. In particular, a greater proportion of non-U.S. born cases were between the ages of 25 – 44 years old (51% vs 24%).

MASSACHUSETTS NON-US BORN AND US BORN CASES BY AGE GROUP 1999



US BORN CASES INCLUDING PUERTO RICO N=43
NON-US BORN CASES N=187
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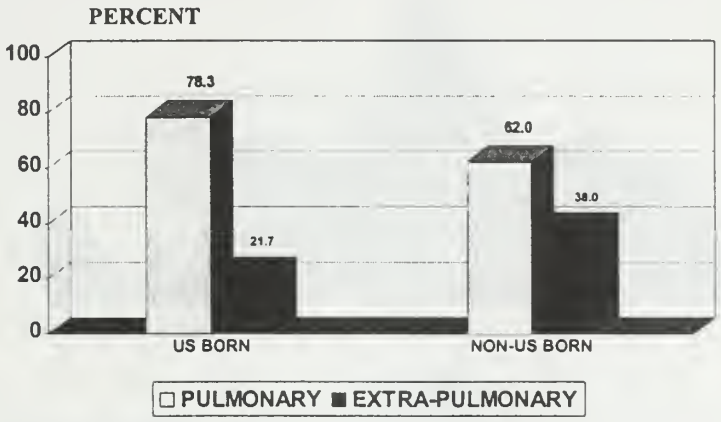
Analyses of the 1999 cases indicate that U.S. born cases are more likely to have pulmonary disease than non-U.S. born cases (78% vs 62%).

MASSACHUSETTS NON-US BORN AND US BORN CASES BY SITE OF DISEASE 1999



US BORN CASES INCLUDING PUERTO RICO N=83
NON-US BORN CASES N=187

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Cases in the Homeless Population

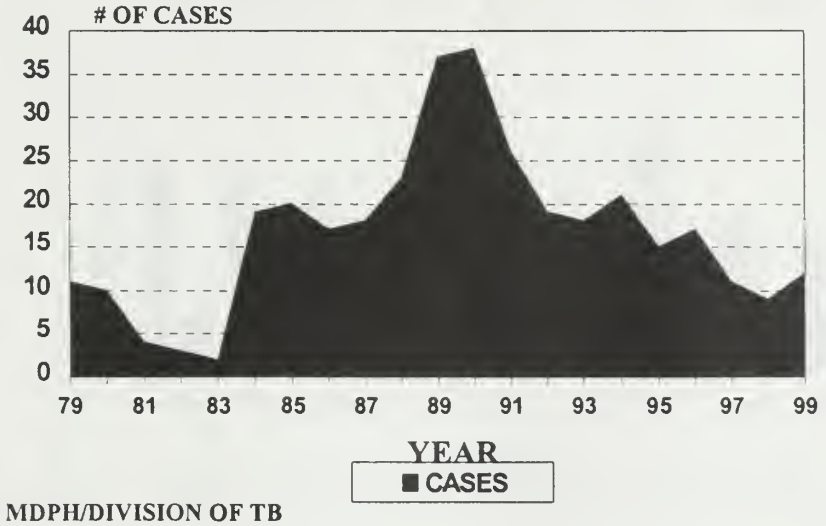
A homeless person is defined as a person who lacks a fixed, regular and adequate night-time residence, including a person who resides in shelters, welfare hotels, on the street, or in a single room occupancy hotel, and who is not paying rent, does not own a home and is not steadily living with relatives or friends.

Note: data reported prior to 1993 for homeless was limited to persons who were homeless at time of diagnosis. In 1993, the CDC revised the definition of homeless to include persons who had been homeless within a year prior to diagnosis.

It is estimated that there are more than 6,000 homeless persons in the Boston area and approximately 23,000 homeless persons statewide. Case rates were calculated based on these figures.

Of the 270 cases of TB reported in 1999, 12 cases (4%, case rate 52.2 per 100,000) were reported to have been homeless.

TB CASES AMONG THE HOMELESS MASSACHUSETTS, 1979 - 1999



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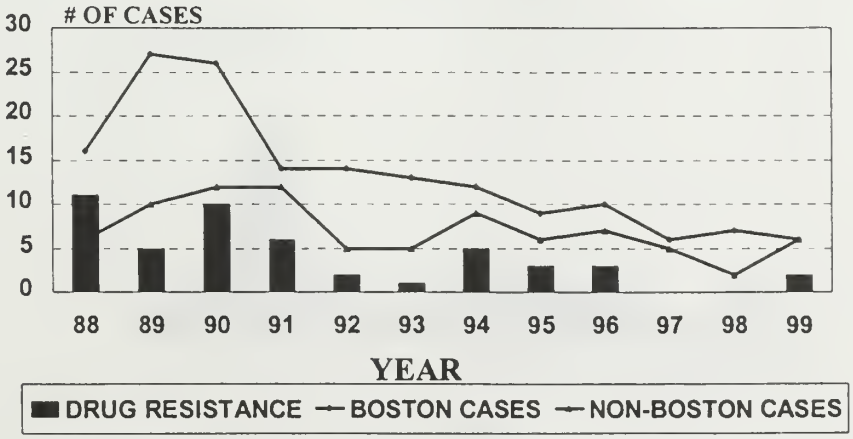
Profile of the 12 homeless cases indicates that 6 (50%) were from the City of Boston, 2 cases had drug resistant TB, 6 cases (50%) were co-infected with HIV, 5 cases (42%) used excessive alcohol and 3 cases (25%) used illicit drugs. The proportion of homeless cases with HIV infection has increase from 11% in 1998 to 50% in 1999. Whether this is a reporting artifact due to an emphasis on HIV reporting, or a developing trend is unknown at this time.

TB CASES AMONG THE HOMELESS MASSACHUSETTS, 1988 - 1999



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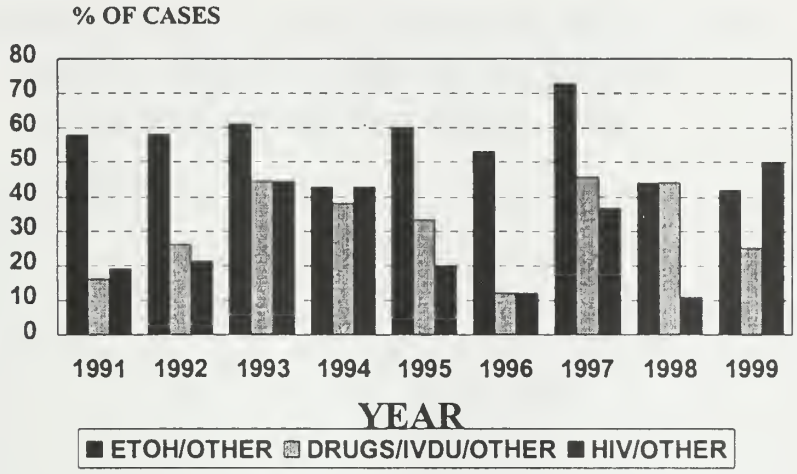
HOMELESS TUBERCULOSIS CASES BY RISK FACTORS 1991 - 1999



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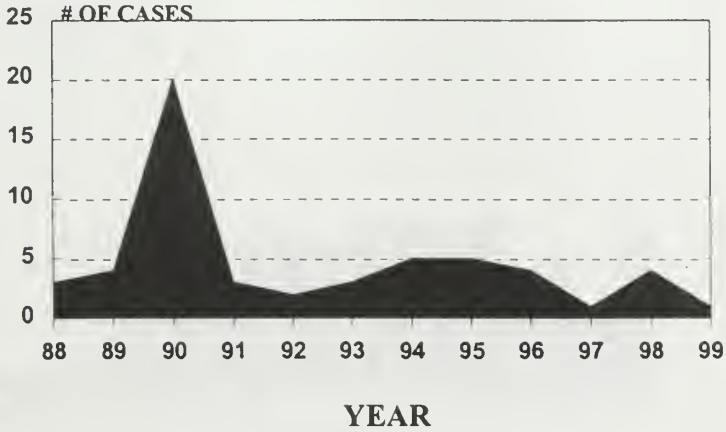
Cases in Correctional Facilities

Between 1989 and 1991, an outbreak of TB occurred at a prison facility located in the southeastern part of the state. This outbreak led to a massive screening effort (12,000 prisoners and staff). Following this outbreak and the accompanying massive screening and educational programs, routine screening of inmates was instituted at all the state prison facilities. In 1999, 1 case (<1%) of TB was diagnosed in a correctional facility.

MASSACHUSETTS TUBERCULOSIS CASES IN CORRECTIONAL FACILITIES 1988 - 1999



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Cases in Long Term Care Facilities

In 1999, 10 cases (4%) were reported to be in persons residing in long term care facilities at time of diagnosis, which includes 6 from nursing homes, 2 from mental health residential facilities and 2 from other long term facilities.

TUBERCULOSIS CASES IN RESIDENTS OF LONG TERM CARE FACILITIES MASSACHUSETTS 1988 - 1999

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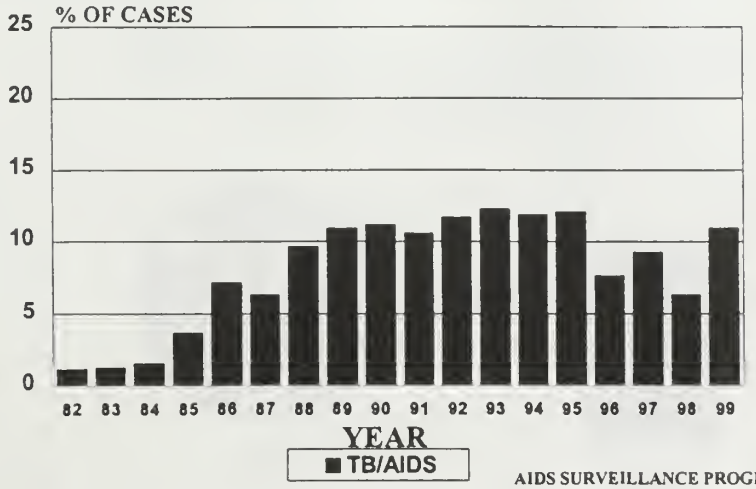
TB/AIDS Cases

Matching of the TB registry to the AIDS registry has taken place yearly since 1992. In 1993, the AIDS definition was revised to include anyone infected with HIV infection with TB disease at any site. Between 1982 - 1998, there were 547 TB/AIDS cases identified. In 1999, 29 (10.7%) TB cases were confirmed to be co-infected with HIV.

PERCENT OF TB CASES DIAGNOSED WITH AIDS 1982 - 1999 (TB/AIDS = 547 CASES)



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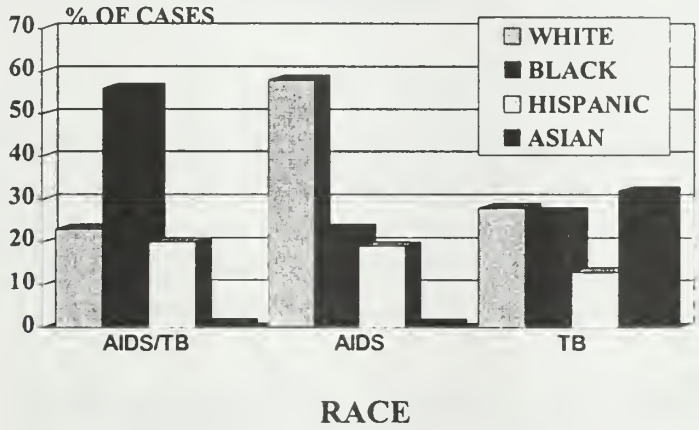
In 1998, the proportion of TB cases reported with AIDS was 6.4% as compared to 10.7% in 1999. Reasons for this increase may include the HIV reporting regulation that went into effect as of January 1999. In addition, during 1999, the TB Division strongly encouraged TB care providers to conduct HIV risk assessment on all TB patients.

Persons of color accounted for the majority of the TB/AIDS cases (420 cases, 77%). When compared to the reported AIDS cases and TB cases, a greater proportion of TB/AIDS cases were black (23% of AIDS and 27% of TB vs 56 of TB/AIDS). In addition, when compared to the TB cases, few TB/AIDS cases and AIDS cases were Asians (1% TB/AIDS and 1% of AIDS vs 32% of TB).

MASSACHUSETTS TB/AIDS , AIDS AND TB**
CASES BY RACE 1982 - 1999
(TB/AIDS = 547 CASES)



*AIDS CASES EXCLUDES THOSE DIAGNOSED WITH TB
**TB CASES FROM 1999

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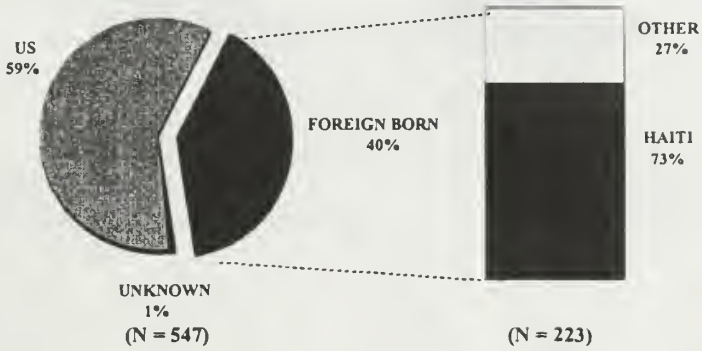
Of the 547 TB/AIDS cases reported between 1982 – 1999, 223 cases (40 %) were in persons born outside of the U.S. and territories.

MASSACHUSETTS TB/AIDS CASES BY
PLACE OF BIRTH 1982 - 1999



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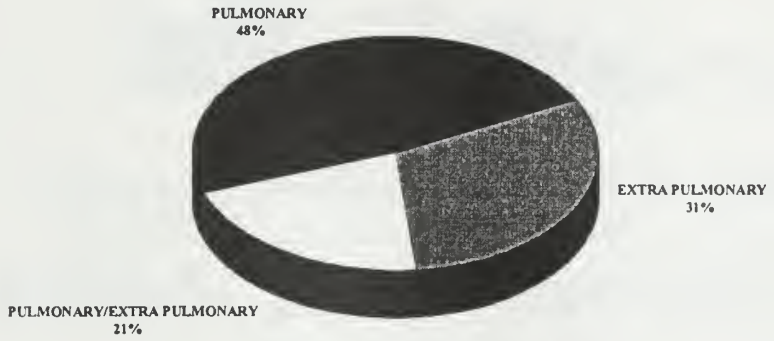
Analysis of TB disease site among TB/AIDS cases indicates that 242 cases (48%) had only pulmonary involvement, 182 cases (31%) had only extra-pulmonary disease and 123 cases (21%) had both pulmonary and extra-pulmonary involvement.

MASSACHUSETTS TB/AIDS CASES BY TB DISEASE SITE 1982 - 1999 (TB/AIDS = 547 CASES)



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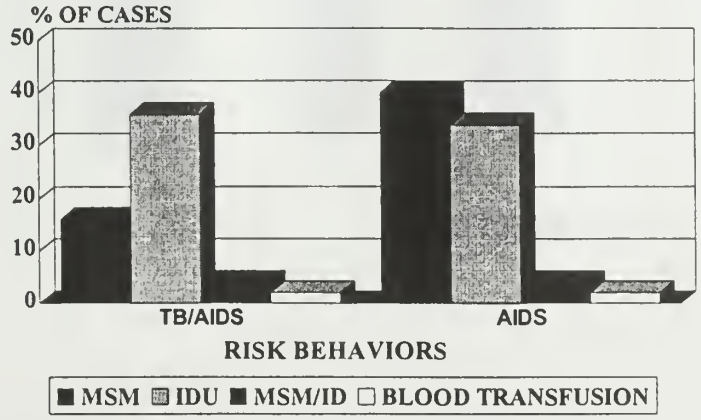
Analyses of TB/AIDS cases by HIV risk behavior indicate that, for TB/AIDS cases, the most common HIV risk is injecting drug use (196 cases, 36%), followed by men who have sex with men (88 cases, 16%). Compared to AIDS cases, a greater proportion of TB/AIDS cases are presumed to have contracted HIV infection through heterosexual contact (21% vs 6%).

MASSACHUSETTS TB/AIDS AND AIDS* CASES BY HIV RISK BEHAVIORS 1982 - 1999 (TB/AIDS = 547 CASES)



IDU=INJECTION DRUG USE
MSM=MALE SEX WITH MALE
*AIDS CASES EXCLUDES THOSE DIAGNOSED WITH TB

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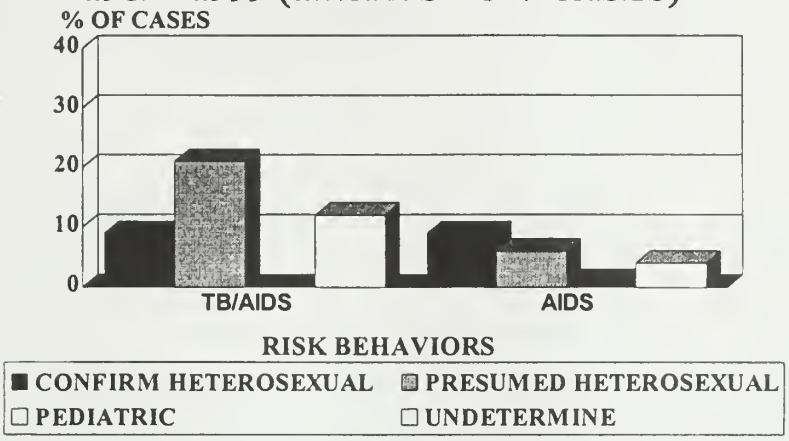
MASSACHUSETTS TB/AIDS AND AIDS* CASES BY HIV RISK BEHAVIORS 1982 - 1999 (TB/AIDS = 547 CASES)



IDU=INJECTION DRUG USE
MSM=MALE SEX WITH MALE
*AIDS CASES EXCLUDES THOSE DIAGNOSED WITH TB

AIDS SURVEILLANCE PROGRAM
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Analyses of TB/AIDS cases by residence at time of AIDS diagnosis indicate that 47% of the TB/AIDS cases reside in the city of Boston.

PROPORTION OF TB/AIDS, TB, AIDS CASES IN BOSTON 1982 - 1999 (TB AIDS = 547 CASES)

*RESIDENCE AT TIME OF TB DIAGNOSIS

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AIDS SURVEILLANCE PROGRAM

Appendices

APPENDIX 1

Massachusetts Department of Public Health, Division of Tuberculosis Prevention and Control

Number of Tuberculosis Cases for 14 Higher Risk Communities, and the Remainder of Communities Reporting for 1993 - 1999, and Seven Year Averages

COMMUNITY	1999	1998	1997	1996	1995	1994	1993	7 Year Average
Boston	77	90	79	87	93	108	115	96
Brockton	13	4	10	10	2	8	13	9
Cambridge	9	11	9	10	8	10	9	9
Chelsea	7	6	8	5	7	2	8	6
Framingham	3	1	6	5	3	4	9	5
Lawrence	9	5	3	5	11	7	4	6
Lowell	18	15	12	10	14	14	15	13
Lynn	8	5	11	6	11	9	12	10
Malden	5	4	4	3	9	3	5	5
New Bedford	2	2	12	5	9	5	10	8
Quincy	7	10	6	7	7	9	10	8
Somerville	4	16	6	7	8	6	10	7
Springfield	7	8	11	4	21	9	11	11
Worcester	13	8	9	11	14	9	17	12
Total 14 Communities	182	185	186	175	217	203	248	206
Percent of State	67%	65%	69%	67%	66%	62%	68%	66%
Total 337 Remaining Communities	88	98	82	87	113	126	118	105
Percent of State	33%	35%	31%	33%	34%	38%	32%	34%
Total Cases in State	**270**	**283**	**268**	**262**	**330**	**329**	**366**	**311**

Higher risk community is defined as those having a seven year average case load of more than 4 and a seven year average case rate above the state case rate

Massachusetts Department of Public Health, Division of Tuberculosis Prevention and Control

Case Rates of Tuberculosis Cases (per 100,000 population) for 14 Higher Risk Communities, with Seven Year Average for 1993 - 1999

COMMUNITY	1999	1998	1997	1996	1995	1994	1993	7 Year Average
Boston	13.41	15.67	13.76	15.15	16.19	18.81	20.02	16.79
Brockton	14.01	4.31	10.78	10.78	2.16	8.62	14.01	9.27
Cambridge	9.39	11.48	9.39	10.44	8.35	10.44	9.39	9.60
Chelsea	24.38	20.90	27.86	17.42	24.38	6.97	27.86	20.90
Framingham	4.62	1.54	9.23	7.69	4.62	6.15	13.85	8.31
Lawrence	12.82	7.12	4.27	7.12	15.67	9.97	5.70	8.55
Lowell	17.40	14.50	11.60	9.67	13.53	13.53	14.50	12.57
Lynn	9.85	6.15	13.54	7.39	13.54	11.08	14.77	12.06
Malden	9.28	7.42	7.42	5.57	16.70	5.57	9.28	8.91
New Bedford	2.00	2.00	12.01	5.00	9.01	5.00	10.01	8.21
Quincy	8.24	11.77	7.06	8.24	8.24	10.59	11.77	9.18
Somerville	5.25	20.99	7.87	9.19	10.50	7.87	13.12	9.71
Springfield	4.46	5.10	7.01	2.55	13.38	5.73	7.01	7.13
Worcester	7.66	4.71	5.30	6.48	8.25	5.30	10.01	7.07
Case Rate for Massachusetts	**4.49**	**4.70**	**4.45**	**4.35**	**5.48**	**5.47**	**6.08**	**5.17**

NUMBER OF TOWNS WITH CASES OF TB BY COUNTY OF RESIDENCE MASSACHUSETTS, 1999

COUNTY	NUMBER OF TOWNS WITH <5 CASES	=>5 CASES	COUNTY	NUMBER OF TOWNS WITH <5 CASES	=>5 CASES
BARNSTABLE	1	0	HAMPSHIRE	1	0
BRISTOL	6	1	MIDDLESEX	19	4
ESSEX	4	2	NORFOLK	8	1
FRANKLIN	2	0	PLYMOUTH	1	1
HAMPDEN	3	1	SUFFOLK	2	2
			WORCESTER	9	1

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BERKSHIRE, DUKE AND NANTUCKET ARE TB FREE IN 1999.